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EXAMINER	
DOUGLAS, JOHN CHRISTOPHER	
ART UNIT	**PAPER NUMBER**
1764	

DATE MAILED: 05/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/789,564	ALDOUS ET AL.	
	Examiner	Art Unit	
	John C. Douglas	1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 February 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-27* is/are rejected.

7)☒ Claim(s) *19* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *11/22/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 19 is objected to because of the following informalities: Claim 19 is stated as depending on claim 17, which would cause claim 23 to not further limit claim 14. Therefore, claim 19 is treated as depending from claim 18. Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 2 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Regarding claim 2, the phrase "such as, for example" renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morehead (US 4744884) in view of Powers (US 5976354). Morehead discloses a process comprising hydrotreating oil shale followed by a dewaxing step; followed by a hydrogenation step; followed by fractionation into one or more lubricating oil fractions (see Morehead, column 5, lines 62-64, column 6, lines 28-29, column 7, lines 15-16, column 10, lines 7-9 and 56-60).

Morehead does not disclose removing at least a portion of the heteroatom species and saturating at least a portion of aromatics in the in the first hydrotreating

stage and removing at least a portion of the heteroatom species in the hydrotreating step after dewaxing. Morehead also does not disclose stripping the effluent from the first hydrotreating step to obtain an intermediate stream.

However, Powers discloses that the hydrotreated material from the first step is stripped (see Powers, column 1, lines 44-50).

Powers discloses that the hydrotreated stream is stripped to remove hydrogen sulfide and ammonia (see Powers, column 1, lines 44-50).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to modify the process of Morehead to include that the hydrotreated material from the first step is stripped in order to remove hydrogen sulfide and ammonia.

Also, Powers discloses saturation of aromatics and the removing of heteroatoms in the first hydrotreating step (see Powers, column 3, lines 1-3 and 30-40).

Powers discloses that aromatics saturation improves base oil stability (see Powers, column 2, lines 65-67).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to modify the process of Morehead to include saturation of aromatics and the removing of heteroatoms in order to improve base oil stability.

9. With respect to claim 2, Morehead in view of Powers disclose everything in claim 1 (see paragraph 5), but Morehead does not disclose where the feedstock is a mixture of several less desirable refinery streams.

However, Powers discloses where the feed is a mixture of vacuum gas oils (see Powers, column 1, lines 5-11).

Powers discloses that lube oils are normally manufactured from these feeds (see Powers, column 1, lines 5-11).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to modify the process of Morehead to include where the feed is a mixture of vacuum gas oils because lube oils are normally manufactured from these feeds.

10. With respect to claim 3, Morehead discloses dewaxing at temperatures between 650 and 800 degrees F (343-427 C), pressures between 500 and 2500 psig, LHSV between 0.1 and 5.0, and hydrogen treat gas rates between 4,000 to 20,000 scf/B (see Morehead, column 7, Table VI).

11. With respect to claim 4, Morehead discloses dewaxing catalysts that are zeolites formed from silica and alumina and have 10 rings (see Morehead, column 7, line 63 - column 8, line 6).

12. With respect to claim 5, Morehead discloses hydrotreating at temperatures between 315 and 427 degrees C (600-800 F) and pressures between 500 and 2500 psig (see Morehead, column 10, Table VII).

13. With respect to claim 6, applicant admits in the specification that conventional hydrotreating catalysts typically include 2-20wt% of a Group 8-10 metal and 5-50 wt% of Group 6 or 16 metal (see Specification, page 13, paragraph 24).

14. Claims 7-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morehead in view of Powers as applied to claims 1-6 above, and further in view of Chen (US 4944862). Morehead in view of Powers discloses everything in claims 1-6 (see paragraphs 8-13) and Morehead discloses where the feed to the dewaxer contains between 330 to 2000 ppm of sulfur (see Morehead, column 6, lines 62-66), but does not disclose where the intermediate stream has an API of about 22 to about 27, a viscosity of about 10 to about 15 at 40 degrees F, a VI of about –20 to about –5, a 5%LV of about 380 to about 405 degrees F, an aniline point of about 130 to about 160 degrees F, and a 95%LV of about 800 to about 1000 degrees F.

However, Chen discloses an intermediate feed to a dewaxing zone with an API of 29.7, a viscosity at 40 degrees C of 7.39, a 5%LV of 544 degrees F, an aniline point of 175 degrees F, and a 95%LV of 775 degrees F (see Chen column 18, lines 38-68, Figure 2 and MPEP 2144.05 I and since the same range of kinematic viscosity is disclosed and the viscosity index is a function of kinematic viscosity, the stream in Chen should have the same viscosity index).

Chen discloses that the addition of the intermediate feed to a dewaxing zone upgrades the operation of the catalytic dewaxer (see Chen, column 11, lines 39-50).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to modify the process of Morehead in view of Powers to include an intermediate feed to a dewaxing zone with an API of 29.7, a viscosity at 40 degrees C of 7.39, a 5%LV of 544 degrees F, an aniline point of 175 degrees F, and a 95%LV of 775 degrees F in order to upgrade the operation of the catalytic dewaxer.

15. With respect to claims 13 and 14, Morehead discloses where there is a fractionation step after the hydrogenation step that produces three oil fractions (see Morehead, column 10, lines 56-60 and Figure).

16. Claims 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morehead in view of Powers and Chen as applied to claims 1-11 above, and further in view of Souillard (US 3878115). Morehead discloses a product fraction having a viscosity between 21.83 and 29.54 cSt (SSU = cSt*4.55) at 40 degrees C, but Morehead in view of Powers and Chen do not disclose a second fraction with a viscosity between about 700 SSU to about 800 SSU at 100 degrees F and a third fraction with a viscosity between about 1100 SSU to about 1300 SSU at 100 degrees F.

However, Souillard discloses naphthenic base oil with a viscosity between 50 and 1000 SSU at 100 degrees F (see Souillard, column 2, lines 1-11 and MPEP §§ 2144.04 V C. and 2144.05 I).

Souillard discloses that such base oils are preferable for use in lubrication compositions (see Souillard, column 2, lines 1-11).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to modify the process of Morehead in view of Powers and Chen to include naphthenic base oil with a viscosity between 50 and 1000 SSU at 100 degrees F because such base oils are preferable for use in lubrication compositions.

17. Claims 18-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morehead in view of Powers, Chen, Souillard, Clark (US 5273645) and Baker, Jr. (US 5951848).

18. With respect to claims 18, 19, 21, 22, and 24-26, Morehead discloses a process comprising hydrotreating oil shale followed by a dewaxing step; followed by a hydrogenation step; followed by fractionation into one or more lubricating oil fractions (see Morehead, column 5, lines 62-64, column 6, lines 28-29, column 7, lines 15-16, column 10, lines 7-9 and 56-60). Morehead discloses dewaxing at temperatures between 650 and 800 degrees F (343-427 C), pressures between 500 and 2500 psig, LHSV between 0.1 and 5.0, and hydrogen treat gas rates between 4,000 to 20,000 scf/B (see Morehead, column 7, Table VI). Morehead discloses dewaxing catalysts that are zeolites formed from silica and alumina and have 10 rings (see Morehead, column 7, line 63 - column 8, line 6). Morehead discloses where the feed to the dewaxer contains between 330 to 2000 ppm of sulfur (see Morehead, column 6, lines 62-66).

Morehead does not disclose where the feedstock is a mixture of several less desirable refinery streams and Morehead does not disclose removing at least about 50 vol% of the sulfur heteroatom species, more than about 20 vol% and saturating at least a portion of aromatics in the in the first hydrotreating stage and removing at least a portion of the heteroatom species in the hydrotreating step after dewaxing. Morehead also does not disclose stripping the effluent from the first hydrotreating step in a stripping column having at least one feed tray and at least one reflux tray wherein at least one intermediate stream characterized as having an API of about 22 to about 27, a viscosity of about 10 to about 15 at 40 degrees F, a VI of about –20 to about –5, a 5%LV of about 380 to about 405 degrees F, an aniline point of about 130 to about 160 degrees F, and a 95%LV of about 800 to about 1000 degrees F is removed from the

stripping column at a point between the feed tray and the reflux tray. Morehead also does not disclose a second fraction with a viscosity between about 700 SSU to about 800 SSU at 100 degrees F and a third fraction with a viscosity between about 1100 SSU to about 1300 SSU at 100 degrees F.

However, Powers discloses where the feed is a mixture of vacuum gas oils (see Powers, column 1, lines 5-11).

Powers discloses that lube oils are normally manufactured from these feeds (see Powers, column 1, lines 5-11).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to modify the process of Morehead to include where the feed is a mixture of vacuum gas oils because lube oils are normally manufactured from these feeds.

Baker discloses hydrotreating prior to dewaxing to remove most of the sulfur and nitrogen heteroatoms (see Baker, column 4, lines 26-48) and aromatics saturation of at least 60% (see Baker, column 4, lines 26-31 and claim 1).

Baker discloses that heteroatoms and aromatics are removed to increase the viscosity index (see Baker, column 4, lines 26-35).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to modify the process of Morehead to include hydrotreating prior to dewaxing to remove most of the sulfur and nitrogen heteroatoms and aromatics saturation of at least 60% in order to increase the viscosity index.

Powers also discloses that the hydrotreated material from the first step is stripped (see Powers, column 1, lines 44-50).

Powers discloses that the hydrotreated stream is stripped to remove hydrogen sulfide and ammonia (see Powers, column 1, lines 44-50).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to modify the process of Morehead to include that the hydrotreated material from the first step is stripped in order to remove hydrogen sulfide and ammonia.

Clark discloses a separation device with columns and trays (see Clark, column 17, lines 19-32).

Clark discloses that such a separating device is often employed (see Clark, column 17, lines 19-32).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to modify the process of Morehead to include a separation device with columns and trays because such a device is often used.

Chen discloses an intermediate feed to a dewaxing zone with an API of 29.7, a viscosity at 40 degrees C of 7.39, a 5%LV of 544 degrees F, an aniline point of 175 degrees F, and a 95%LV of 775 degrees F (see Chen column 18, lines 38-68, Figure 2 and MPEP 2144.05 I and since the same range of kinematic viscosity is disclosed and the viscosity index is a function of kinematic viscosity, the stream in Chen should have the same viscosity index).

Chen discloses that the addition of the intermediate feed to a dewaxing zone upgrades the operation of the catalytic dewaxer (see Chen, column 11, lines 39-50).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to modify the process of Morehead in view of Powers to include an intermediate feed to a dewaxing zone with an API of 29.7, a viscosity at 40 degrees C of 7.39, a 5%LV of 544 degrees F, an aniline point of 175 degrees F, and a 95%LV of 775 degrees F in order to upgrade the operation of the catalytic dewaxer. It would also be obvious to remove the intermediate stream at a point on the stripping column to achieve the above intermediate stream specifications.

Souillard discloses naphthenic base oil with a viscosity between 50 and 1000 SSU at 100 degrees F (see Souillard, column 2, lines 1-11 and MPEP §§ 2144.04 V C. and 2144.05 I).

Souillard discloses that such base oils are preferable for use in lubrication compositions (see Souillard, column 2, lines 1-11).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to modify the process of Morehead in view of Powers and Chen to include naphthenic base oil with a viscosity between 50 and 1000 SSU at 100 degrees F because such base oils are preferable for use in lubrication compositions.

19. With respect to claims 20 and 27, Morehead discloses hydrotreating at temperatures between 315 and 427 degrees C (600-800 F) and pressures between 500 and 2500 psig (see Morehead, column 10, Table VII) and applicant admits in the specification that conventional hydrotreating catalysts typically include 2-20wt% of a

Group 8-10 metal and 5-50 wt% of Group 6 or 16 metal (see Specification, page 13, paragraph 24).

20. With respect to claim 23, Applicant admits that fractionation typically results in bottoms fraction with a higher boiling point than the base oils and a lighter fraction boiling in the kerosene range (see Specification, page 15).

Conclusion

21. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Forbus (US 5246568) and Egan (US 3487005).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John C. Douglas whose telephone number is 571-272-1087. The examiner can normally be reached on 7:30 A.M. to 4:30 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn A. Caldarola can be reached on 571-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JCD

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